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**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**In re: Anthony *et al.*

Docket: TI-24953

Appl. No.: 09/116,138

Examiner: A. Mai

Filed: 07/15/98

Art Unit: 2814

For: High Permittivity Silicate Gate Dielectric

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David Denker, Reg. No. 40,987**FACSIMILE COVER SHEET**

<input checked="" type="checkbox"/> <b>FACSIMILE COVER SHEET (1 SHEET)</b>	AMENDMENT _____ (# Pages)
NEW APPLICATION	EOT _____ (# Pages)
DECLARATION	NOTICE OF APPEAL (# Pages)
ASSIGNMENT	APPEAL _____ (# Pages)
FORMAL DRAWINGS	ISSUE FEE
INFORMAL DRAWINGS	REPLY BRIEF (IN TRIPLICATE)
CONTINUATION APP'N	<input checked="" type="checkbox"/> Petition from requirement for restriction
DIVISIONAL APP'N	
NAME OF INVENTOR(S): Anthony <i>et al.</i>	
TITLE OF INVENTION: High Permittivity Silicate Gate Dielectric	
TI FILE NO.: <b>TI-24953</b>	DEPOSIT ACCT. NO.: <b>20-0668</b>
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RECEIPT DATE & SERIAL NO.: Appl. No.: 09/116,138 Filing Date: 07/15/98	

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SEE 5367285 "ZrON"

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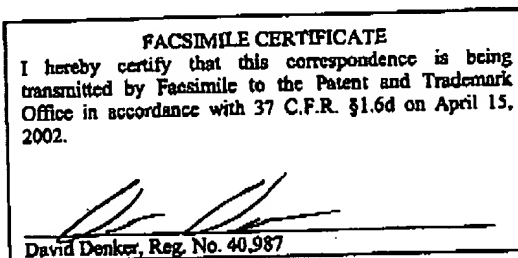
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TECHNOLOGY CENTER 2800

PETITION FROM REQUIREMENT FOR RESTRICTION - 37 C.F.R. § 1.144 & 1.181

Box DAC  
Commissioner of Patents and Trademarks  
Washington, D.C. 20231



Commissioner:

Petitioners request the Commissioner to review and withdraw the restriction requirement issued by Examiner Mai on October 22, 2001 and made final by Examiner Mai in an Office Action dated January 14, 2002.

Issues Presented for Review

1. Was the restriction between Group I—method—and Group II—device proper?
2. Was the species restriction into more than 40 species proper?
3. Should claims 28 and 29 have been examined after linking claim 26 was found allowable?
4. Should claims 71 - 73 have been examined after linking claim 26 was found allowable?

STATEMENT OF THE FACTS:

A. This application was filed on 7/15/98. Claims 1 - 40 were submitted as part of the application. Excess claim fees were paid upon 20 claims and 1 independent claim.

**B.** On 8/6/99, Applicants elected to withdraw device claims 31 - 35 after Examiner Souw contacted Applicants' agent by telephone. On 8/10/99, Applicants acknowledged during a telephone interview that the election was made without traverse. Applicants are not contesting this restriction.

**C.** Examiner Souw examined claims 1 - 30 and 36 - 40 and issued an Office Action on 8/18/99. The Hsieh '035 reference relied upon disclosed zirconium. No second restriction/election requirement was issued. In their next response on 12/20/99, Applicants canceled non-elected claims 31 - 35. No second restriction/election requirement was issued.

**D.** Examiner Souw examined claims 1 - 30 and 36 - 40 again and issued a second Office Action on 1/13/00. No second restriction/election requirement was issued. Applicants responded on 7/13/00 by adding dependent claims 41 - 45 to more specifically claim several zirconium-based embodiments.

**E.** Examiner Souw examined claims 1 - 30 and 36 - 40 again along with new claims 41 - 45 and issued a third Office Action on 9/20/00 finally rejecting claims 1 - 30 and 36 - 45. No second restriction/election requirement was issued. Applicants submitted an amendment under 37 C.F.R. §1.116 (in which no claims were amended) on 12/4/00. Applicants filed a NOTICE OF APPEAL on 12/19/00.

**F.** Examiner Mai reaffirmed the rejection in an advisory action on 1/12/01. No second restriction/election requirement was issued. Applicants filed an appeal brief in favor of claims 1 - 30 and 36 - 45 on 2/20/01.

**G.** Examiner Mai reopened prosecution and mailed a fourth Office Action on 5/09/01. No second restriction/election requirement was issued. The Office Action indicated that claims 10, 11, 16 - 23, 26 - 30, and 43 - 45 contained allowable subject matter.

**H.** Applicants filed an amendment on 8/09/01 that canceled claims 41 - 45 and added claims 46 - 80. New claims 46 - 73 claim a wide range of zirconium-based embodiments. Several of these claims were very similar in scope to canceled claims 41 - 45 and most—if not all—of these claims were similar in style—with the addition of zirconium limitations—to original claims 1 - 30 and 36 - 40. New claims 74 - 80 were claims to several product-by-process embodiments. Claim fees were paid upon 30 additional claims.

**I.** Thus on 8/09/01, claims 1 - 30 and 36 - 40 had been examined at least FOUR times over a period of almost two years. Every rejection relied on at least one reference disclosing zirconium.

Nevertheless, on 10/22/01—over three years after the original filing date—Examiner Mai issued an order restricting the claims into 2 groups and over 40 subgroups: (I) claims 1 - 30 and 46 - 73; (II) claims 36 - 40 and 74 - 80. The subgroups are:

- Ia, Ia-1, Ia-2, Ia-3, Ia-4

- Ib, Ib-1, Ib-2, Ib-3, Ib-4
- Ic, Ic-1, Ic-2, Ic-3, Ic-3-1, Ic-3-2, Ic-3-3
- Id
- Ie, Ie-1, Ie-1-1, Ie-1-2, Ie-1-3
- I\*\*
- If, If-1, If-2, If-3, If-4
- Ig-1, Ig-1, Ig-2, Ig-3
- Ih, Ih-1, Ih-2, Ih-3, Ih-3-1, Ih-3-2, Ih-3-3
- Ii
- Ij

J. Applicants filed an ELECTION on 11/20/01. The ELECTION elected to pursue Group I, Species I3-1-3: claim 30. The election traversed the restriction requirement and presented 2 pages of detailed reasons why the requirement should be withdrawn.

K. In an Office Action dated 1/14/02, Examiner Mai the restriction requirement proper and made it final, along with making the rejections to the claims final.

### Arguments

1. The restriction between Group I—method—and Group II—device was not proper.

The Office Action does not show that the claimed product could be made with a materially different process than the process of claim 1.

A. Applicants traverse the Office Action's reasoning as to how the product could be made with a materially different process. The Office Action's reasoning discussed a hypothetical process in which the metal or zirconium silicate layer can be made by implanting oxygen ions into a metal or zirconium silicide layer, then annealing in an oxidizing ambient. Applicants will assume—for the purposes of the current discussion—that this approach is a feasible approach to forming the claimed field-effect device. However, Applicants submit that the Office Action's hypothetical process<sup>1</sup> is not materially different than the process claimed by either claim 1 or 46. In fact, if practiced, the Office Action's hypothetical process would be a process that infringes claims 1 and 46. Thus, the hypothetical process is not a materially

<sup>1</sup> The Office Action only gave a skeleton of a hypothetical partial process. However, this analysis assumes that the partial process is fleshed out into a complete hypothetical process using Applicants' claim as a template.

different process and restriction is not currently appropriate. Applicants request that the Commissioner reverse the restriction requirement.

Applicants note that the 1/14/02 Office Action stated that the traversal did not provide any evidence that the "alternative process" can not form the metal silicate layer. Applicants submit that even assuming that the "alternative process" can form the metal silicate layer, it is not a materially different process.

*objections ?*

2. **The restriction into more than 40 species was not proper.**

Applicants wish to note that the scope of the restriction requirement is breathtaking. Applicants' understanding is that the application has been restricted into more than 40 species. Applicants submit that a restriction of such magnitude should be applied hesitantly even in the most severe circumstances. Applicants believe that if such a restriction were carried out, examined, and issued as a set of divisional applications, neither the public, the USPTO, nor the Applicants will be well served.

The public would have to digest many sets of claims to determine what is excluded, but yet receive only the teaching that was available in the initial application. The USPTO will be burdened by exploding what had been a single case for review into forty cases - with the resulting significant burden on the USPTO to have multiple examiners perform multiple examinations on a single application having claims that were previously examined at least four times. The burden on Applicants will also be significant. Besides the fees that would make anyone hesitate, the time and energy to prosecute dozens of cases will be a significant burden.

**37 C.F.R. § 1.146 does not authorize species restrictions after the first action on an application.**

B. 37 C.F.R. § 1.146 authorizes the Examiner to require applicants to elect a species under certain circumstances. However, according to the text of rule 146, this only applies to a first action on an application.<sup>2</sup> As this is not the first action on the instant application, a species restriction is not currently appropriate. Applicants request that the Commissioner reverse the restriction requirement.

**Examining the entire claim set does not place a serious burden on Examiner.**

C. Applicants have received several Office Actions from at least two different Examiners that competently address the merits of the claimed inventions. These earlier Office Actions show that—

<sup>2</sup> "In the first action on an application containing a generic claim to a generic invention (genus) and claims to more than one patentably distinct species embraced thereby, the examiner may require the applicant in the reply to that action to elect a species of his or her invention to which his or her claim will be restricted if no claim to the genus is found to be allowable. . ." 37 C.F.R. § 1.146.

at least for the first 40 claims—the burden placed on the USPTO is not excessive, particularly in light of the excess claim fees received by the USPTO.

In the Office Action finalizing the restriction requirement, Examiner notes “the previously received Office Action from different Examiners can not be used for this instant application unless the same invention is claimed again.” Since claims 1 - 40 are nearly completely unchanged,<sup>3</sup> Applicants submit that the same invention is claimed again. Since it appears that Examiner Mai is prepared to give “full faith and credit [ ] to the search and action of the previous examiner” [Souw] per MPEP §704, there is not a serious burden on Examiner Mai.

D. Regarding the new claims, presented in August, claims 46 - 73 are intended to be Zr-based embodiments of original claims 1 - 30. Some of these claims are similar in scope to canceled claims 41 - 45. (Note: Claims 41 - 45 were canceled since the new claims provided similar protection with a more focused claim). Additionally, many of the rejections presented to date are based on prior art disclosing Zr. Thus, the addition of claims 46 - 73 has presented little additional burden to the examination of this application.

In the Office Action finalizing the restriction requirement, Examiner notes “that the addition of claims 46 - 80 has presented little additional burden to the examination of this application.”

E. The USPTO forced Applicants to elect which group of claims to have examined in August 1999. Any serious burden could have been recognized at that time—before both the USPTO and Applicants invested a great deal of time and energy in the instant application.

F. Applicants request that the Commissioner reverse the restriction requirement.

3. Claims 28 and 29 should be examined since linking claim 26 was found allowable.

G. Allowable claim 26 links claims 28 and 29 to elected claim 30. Applicants request that the Commissioner reverse the restriction requirement as to claims 28 and 29 since a claim to the genus has been found allowable.

4. Claims 71 - 73 should be examined since linking claim 26 was found allowable.

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<sup>3</sup> Claims 4, 25, and 40 have each been slightly amended since filing.

H. Allowable claim 26 links claims 71 - 73 to elected claim 30. Claims 71 - 73 each contain all the limitations of generic claim 26. As such, claim 26 links these claims to elected claim 30. Applicants request that the Commissioner reverse the restriction requirement as to claims 71 - 73 since a claim to the genus has been found allowable.

5. Conclusion

I. The Office Action does not show that the claimed product could be made with a materially different process than the process of claim 1. Applicants respectfully submit that this justifies withdrawal of the election/restriction requirement set forth by Examiner Mai.

J. A restriction into more than 40 species is an order of magnitude more than is appropriate in nearly any situation. 37 C.F.R. § 1.146 does not authorize species restrictions after the first action on an application. In this particular application, examining the entire claim set does not place a serious burden on Examiner.

Applicants respectfully submit that any one of these reasons justifies withdrawal of the election/restriction requirement set forth by Examiner Mai.

K. Claims 28 and 29 should be examined since linking claim 26 was found allowable.

L. Claims 71 - 73 should be examined since linking claim 26 was found allowable.

M. Applicants could find no fee associated with a Petition under 37 C.F.R. § 1.144. Applicants believe that no fee is due. However, please charge any required fee—including needed extension of time fees—to the deposit account of Texas Instruments Incorporated, Account No. 20-0668.

Respectfully submitted,



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